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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,119	01/26/2001	Katsumi Sahoda	OCW-002	8983
959	7590	11/30/2005	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	
DATE MAILED: 11/30/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/772,119	Applicant(s) SAHODA, KATSUMI	
	Examiner Jonathan S. Crepeau	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-16 and newly added claims 17-20. All the claims are rejected under 35 USC 112, first paragraph as necessitated by amendment. In addition, claims 1-17 and 19 are newly rejected under 35 USC 103. Claims 18 and 20 contain allowable subject matter. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 11 have been amended to recite that the first and second hydrogen occlusion materials are “different” from each other. There is not believed to be sufficient support for this language in the originally-filed application. The specification (and new claims 17-20) disclose a specific way in which the two materials are different. However, there is not sufficient support for the materials being different in ways other than the disclosed way, as

currently encompassed by independent claims 1 and 11. As such, the new language is broader than what is originally disclosed in the application and therefore is considered to constitute new matter.

Claim Rejections - 35 USC § 103

4. Claims 1-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over 11-265724 in view of Tsutsumi et al (U.S. Patent 5,366,820).

JP '724 is directed to a fuel cell system comprising a fuel cell (3), and first and second hydrogen occluding devices (6a, 6b) located downstream from the anode outlet (see Fig. 5, paragraph [0022]). The second device (6a) is capable of occluding hydrogen released from the first device (6b). The devices are connected to the anode inlet line (18) such that hydrogen may be supplied from the devices to the fuel cell. The release of hydrogen from the second device (6a) is controlled by a heating loop (10). The devices are flow-through type tanks. Regarding claim 2, the second device is capable of supplying hydrogen upon startup. Regarding claims 3 and 7, the first device (6b) is capable of being heated to release hydrogen.

JP '724 does not expressly disclose that the hydrogen storage materials in the tanks are different, as recited in claims 1 and 11, or that the first material is of a low pressure occlusion and high temperature release type and that the second material is of a high pressure occlusion and low temperature release type as recited in claims 17 and 19.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use these types of hydrogen storage materials in the system of JP '724. In JP '724, the second tank (6a) is directly upstream the anode. It would be obvious to use a hydrogen storage alloy in this tank that is a low temperature release type so that changes in hydrogen amount supplied to the anode can be achieved with a minimal amount of heat input the second device. Conversely, it would be obvious to use a higher temperature release type material in the first device (6b) because the function of this tank is more concerned with storing hydrogen than releasing it. Further, the disclosure of Tsutsumi et al. is cited herewith. In Figure 13, the reference teaches a fuel cell system comprising two hydrogen storage devices having alloys having different hydrogen desorption temperatures (col. 13, line 45 et seq.). The disclosure of the reference is taken as further evidence that hydrogen storage tanks having different alloys are known, particularly in systems where efficient startup is crucial (col. 13, line 59 of Tsutsumi et al).

JP '724 further does not expressly teach that a heat exchanger is provided in the supply conduit between the second device and the fuel cell, as recited in claims 6, 10, and 16. The reference further does not teach that hydrogen is supplied from the second device upon startup (claim 12), or that the first device is heated to release hydrogen (claims 13 and 14).

However, each of these limitations would be rendered obvious to a skilled artisan by the disclosure of JP '724. Regarding the limitation that the first device is heated to release hydrogen, the reference teaches that the second device (6a) is heated to release hydrogen. It would therefore also be obvious to heat the first device (6b) accordingly to release the proper amount of

hydrogen to the second device. Regarding the limitation that hydrogen is supplied upon startup (claim 12), it would also be obvious to perform this step since the reformer (2) would not instantaneously supply hydrogen to the fuel cell upon startup. Finally, regarding the limitation reciting a heat exchanger in the supply line leading to the anode, this feature would also be rendered obvious. The artisan would be motivated to use the enthalpy contained in stream 8 to heat other parts of the system, i.e., the reformer to increase system efficiency. Accordingly, this limitation would also be rendered obvious.

Allowable Subject Matter

5. Claims 18 and 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, first paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance:

Claims 18 and 20 recite specific materials used in the first and second hydrogen storage devices. Neither JP '724 nor Tsutsumi et al. teach or fairly suggest the claimed compositions.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Primary Examiner
Art Unit 1746
November 26, 2005